

TED M. POSTON
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Environmental Sciences Division
Battelle, Pacific Northwest Laboratories

EDUCATION

- B.A., Biology, Central Washington University, 1973
- M.S., Fisheries, University of Washington, 1978
- Additional graduate studies in fish disease and immunology, 1982-83

RELEVANT EXPERIENCE

Mr. Poston has been employed by Battelle Memorial Institute for over 26 years at the Hanford Site. During this time, Mr. Poston has undertaken a number of efforts in the area of environmental assessment and research with an emphasis in aquatic ecology, eco-toxicology, risk assessment (NEPA), environmental surveillance, community noise analysis, radioecology, and fisheries. He has authored or co-authored more than 90 scientific articles, reports and presentations.

Eco-Toxicology

Mr. Poston has managed several studies investigating the aquatic toxicity of materials and compounds to aquatic organisms. He managed a large study evaluating the acute toxicity of obscurant smoke-generating materials (red phosphorous-butyl rubber, white phosphorus-felt, and SGF No. 2 Fog oil to four species of fish, four macro-invertebrates, and a green alga. The study developed methods for dosing water and evaluated water quality factors that influenced toxicity.

Mr. Poston has been active in ASTM working groups and symposia developing standardized testing methodologies for aquatic organisms. He co-chaired the Ninth Symposium on aquatic toxicology in Philadelphia in 1986. He has provided technical recommendations to procedures for testing freshwater algae, daphnia, early life stages of fish, and sediment toxicity testing generated under the auspices of Committee E-47.

Other toxicity studies have addressed acute toxicity of uranium and thorium in aquatic organisms and periphyton communities, accumulation of actinide elements in algae, daphnia and fish, use of *Xenopus laevis* in assessing developmental toxicity of complex organic compounds, inter-laboratory comparison studies, and use of Microtox bioluminescence assay to evaluate marine sediment toxicity. Mr. Poston also evaluated the risk to organisms attributable with the use of treated wood in freshwater and marine ecosystems.

Environmental Surveillance

Mr. Poston currently is managing two technical tasks on the Surface Environmental Surveillance Project (SESP) at the Hanford Site and assists directly in project management activities. The SESP conducts the near and far field environmental monitoring at the Hanford Site. Mr. Poston manages a Biota Task that encompasses agricultural media, fish and wildlife, and soil and natural vegetation. Task management involves establishing a sampling schedule, tracking and evaluating results for trends, developing appropriate sampling methods as needed, training of sample collection staff on sampling methods, and reporting the results in public and technical reports and presentations. Additionally, Mr. Poston has been involved with Quality Assurance on the SESP and coordinating analytical services and audits with a contract radiochemical laboratory. Mr. Poston has recently performed an evaluation of uranium contamination in soil around a research complex on the Hanford Site, a limnological, chemical and radiological characterization of a Site seep pond, evaluations of radionuclide levels in shoreline vegetation, fish, wildlife,

a review of uranium in asparagus found on and off the Hanford Site, and an evaluation of strontium-90 in alfalfa as a result of releases to the Columbia River. Additional studies have evaluated ten-year trends in environmental surveillance data for radionuclides in soils, natural vegetation, fish, and wildlife on and around the Hanford Site. Recent efforts have been designed to involve the adjacent communities with the sampling of farm products and education about surveillance efforts at Hanford and coordinating a public outreach forum for surveillance activities around the Hanford site.

Radioecology

In contrast to applied applications, Mr. Poston has had heavily involvement in radioecological research at the Hanford Site. Mr. Poston has conducted extensive reviews of the bioaccumulation potential of radionuclides in fish for federal and private agencies. Along these lines, Mr. Poston produce the initial review and compilation of historic fish data for the Hanford Environmental Dose Reconstruction Project. Mr. Poston made key technical contributions to ecological and limnological studies of low-level radiological waste ponds and streams on the Hanford site. Technical direction shifted from field oriented research to biological effects investigating immuno-suppression of humeral antibody synthesis in juvenile rainbow trout exposed embryological to sub-lethal concentrations of tritium. These studies involve the design and conduct of exposures of trout embryos to a gamma source and tritiated water, immunological challenges and sampling and analysis of humeral antibody production in the juvenile fish.

Fisheries

Mr. Poston has performed studies addressing the susceptibility of fish to disease following exposure to thermal stress and exposure to suspended volcanic ash. These studies involve exposing fish to thermal regimes that simulate passage through a thermal plume in a large river and exposing fish to bacterial pathogens to evaluate infection rate. Mr. Poston has participated in numerous field sampling efforts that address the temporal and spatial distribution of anadromous fish in the Columbia River and evaluations of juvenile fish impingement on traveling intake screens or nuclear facilities.

Mr. Poston has also performed studies evaluating the use of fish lymphocytes for the production of monoclonal antibodies for potential development of an Enzyme Linked Immuno Sorbant Assay system for chemicals in environmental media.

Environmental Assessment

Mr. Poston has performed numerous environmental assessments in terrestrial and aquatic ecology, land use, and community noise analysis. Mr. Poston has evaluated and performed environmental noise analysis for NEPA documentation, primarily environmental impact statements for major federal activities including conversion of oil-fired power plants to coal under the Fuel Use Act, production reactors for the Department of Energy's weapons complex, and several recent DOE actions including the Dual Axis Radiographic Hydrodynamic Test Facility, the Waste Isolation Pilot Plant FSEIS, and the Yucca Mountain EIS. He has performed environmental compliance audits for DOE facilities and research projects for private and federal clients. As a hazardous materials custodian, he has administered and implemented waste management regulations in research laboratories and overseeing and written study-specific safety protocols. Mr. Poston has managed an environmental toxicity project performed under Good Laboratory Practices.

Mr. Poston has managed and provided technical direction and expertise for an exposure assessment project funded by the Environmental Protection Agency. This project performed varied tasks addressing exposure assessment issues including an endangerment assessment for a Superfund mining site, re-suspension of asbestos laden road dust, determination of soil ingestion rates in children, and the effects of cooking on PCB congener concentrations in cooked fish fillets. Mr. Poston managed a study for the US Environmental Protection Agency that developed a ranking system for chemical pollutants. The system

use human (i. e., mammalian) toxicity, environmental toxicity, and environmental fate information.

In conjunction with a multimedia modeling initiative for the Department of Energy, Mr. Poston developed a methodology for estimating sport fish harvest based on hydrological parameters of the aquatic habitat (surface area, flow etc.). The focus of this effort was relating harvest statistics to key hydrologic variables with regression analysis.

PUBLICATIONS

Thesis:

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- Radioactive Sample Analysis. Technical Management Services, Inc., Atlanta, Georgia, October 28-31, 1991.
- Low Level Radiation: Treatment and Interpretation of Environmental Data. American Academy of Health Physics, Course No. 91-05-008. INEL Oversight Program, Department of Health and Welfare, State of Idaho, Boise, IA. March 23-24, 1991.
- Hazardous Waste Operations Refresher Training (8-hour), Quality Training and Resource Center, U.S. Department of Energy, Richland Operations, Richland, Washington, May 1990, 1992, November 1993, October 1994, January 1995.
- Media Communication Skills, Washington State University. C&I Continuing Education, Richland, Washington, December 1989.
- Hazardous Materials 40-Hour Health and Safety Training, administered by Urie Environmental Health, Inc., at Richland, Washington, January 1989.
- Environmental Laws Regulations Compliance Course, Tri-Cities University Center, administered by Government Institutes, Inc., Richland, Washington, September 1988.
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